

REMARKS

Claims 34-60 have been rejected and remain pending. Claims 53 and 57 have been amended herein to recite porcine ciliated tracheal cells. No new matter has been added.

In light of these amendments and the following remarks, Applicants respectfully request reconsideration and allowance of claims 34-60.

Rejections under 35 U.S.C. § 112, second paragraph

The Examiner rejected claims 35 and 42 under 35 U.S.C. § 112, second paragraph, as allegedly being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In particular, the Examiner questioned what new limitations are placed on the invention by dependent claims 35 and 42.

Applicants respectfully submit that claims 35 and 42 require the recited polypeptide to be obtained from pathogenic *Mycoplasma hyopneumoniae*, while independent claims 34 and 39 recite the polypeptide without any particular method for obtaining it.

The Examiner also rejected claims 34-60 under 35 U.S.C. § 112, second paragraph, as allegedly being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In particular, the Examiner stated that it is unclear from the specification if the claimed polypeptide can also be present in nonpathogenic *M. hyopneumoniae*.

Applicants respectfully submit that a person having ordinary skill in the art reading Applicants' specification would have understood the claimed subject matter. Thus, the presently presented claims are clear and unambiguous. With respect to the Examiner's question, Applicants respectfully submit that page 14, lines 15-19 state that:

The $[Ca^{2+}]_i$ increased by 250 ± 19 nM ($n = 47$ cells) from the basal level within 100 seconds of addition of pathogenic *M. hyopneumoniae* strain 91-3 (300 $\mu\text{g/mL}$), which lasted about 60 seconds. In contrast, nonpathogenic *M. hyopneumoniae* and *M. flocculare* at 300 $\mu\text{g/mL}$ failed to increase $[Ca^{2+}]_i$.

Likewise, page 17, lines 19-22 state that:

As shown in Figures 1 and 2, administration of pathogenic *M. hyopneumoniae* strain 91-3 (300 $\mu\text{g/mL}$) increased $[\text{Ca}^{2+}]_i$ in ciliated cells within 100 seconds. In contrast, nonpathogenic *M. hyopneumoniae* (18 cells in 6 experiments) and *M. flocculare* (24 cells in 8 experiments) did not increase $[\text{Ca}^{2+}]_i$ at the same mycoplasma concentration (300 $\mu\text{g/mL}$) (Figure 1).

In light of the above, Applicants respectfully request withdrawal of the rejections of claims 34-60 under 35 U.S.C. § 112, second paragraph.

Rejections under 35 U.S.C. § 112, first paragraph

The Examiner rejected claims 53-60 under 35 U.S.C. § 112, first paragraph, as allegedly lacking enablement.

Applicants respectfully disagree. A person having ordinary skill in the art reading Applicants' specification would have been able to make and use the previously claimed invention without undue experimentation. To further prosecution, however, independent claims 53 and 57 have been amended to recite porcine ciliated tracheal cells. As the Examiner acknowledged, Applicants' specification is enabling for "methods utilizing porcine ciliated tracheal cells."

In light of the above, Applicants respectfully request withdrawal of the rejections of claims 53-60 under 35 U.S.C. § 112, first paragraph.

Rejections under 35 U.S.C. § 102(b)

The Examiner rejected claims 34-52 under 35 U.S.C. § 102(b) as being anticipated by the '706 patent (U.S. Patent No. 5,240,706). In particular, the Examiner, after acknowledging that the '706 patent does not teach that the disclosed polypeptides have the calcium release activity recited in the present claims, concluded nevertheless that the ability to alter calcium release in porcine ciliated tracheal cells is an inherent activity of the disclosed polypeptides absent evidence to the contrary.

Applicants respectfully disagree. A person having ordinary skill in the art reading the '706 patent would not conclude that any of the disclosed polypeptides necessarily have the

ability to increase calcium release from porcine ciliated tracheal cells. This is particularly true given that Example 1 of the '706 patent cited by the Examiner provides no information about the pathogenic nature of the *Mycoplasma hyopneumoniae* used. As disclosed in Applicants' specification, "nonpathogenic *M. hyopneumoniae* and *M. flocculare* at 300 µg/mL failed to increase [Ca²⁺]." See page 14, lines 17-19. For this reason alone, this anticipation rejection fails to meet the proper standard for anticipation by inherency.


In light of the above, Applicants respectfully request withdrawal of the rejections of claims 34-52 under 35 U.S.C. § 102(b).

CONCLUSION

Applicants submit that claims 34-60 are in condition for allowance, which action is requested. The Examiner is invited to call the undersigned attorney at the telephone number below if such will advance prosecution of this application. Please apply any charges or credits to Deposit Account No. 06-1050.

Respectfully submitted,

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